AGENDA

24th Space Photovoltaic Research and Technology Conference

Tuesday, September 20, 2016

7:30 Breakfast

8:00 – 9:15 Registration

9:15 – 10:00 Introductory Remarks

Session I
NASA Technology and Mission Overviews

10:00 **Activities in Space Photovoltaics at NASA GRC** (Piszczor / NASA Glenn Research Center)

10:30 **Extreme Environments Solar Power Project** (Palac / NASA Glenn Research Center)

11:00 – 11:15 Break

Session II
Alpha / Beta Voltaic Technology

11:15 **Limits and Potential for Durable Liquid-Semiconductor-Based Alphavoltaics** (Montgomery / Air Force Research Laboratory)

11:35 **High Energy Long Life Betavoltaic Battery** (Hillier / Microlink Devices)

11:55 – 12:10 Group Photo

12:10 – 1:10 Lunch

Session III

Testing and Environmental Effects

1:10 **Solar Simulator LED Boost Zones for Characterization Next Generation Multijunction Solar Cells & Using Electroluminescence Characterization to Determine Multijunction Subcell Voltage Temperature Coefficients** (Bradshaw / Air Force Research Laboratory)

1:30 **LED Solar Simulation for Large and Small Area Space Solar Cell Arrays** (Hare / Angstrom Designs)

1:50 **Electrical Biasing During Coupon Thermal Cycling** (Sharps / SolAero)

2:10 **Consideration of Flashover Propagation** (Ferguson / Air Force Research Laboratory)

2:30 – 2:40 Break

Session IV

Blanket Materials and Components

2:40 **Crack-Tolerant Metal Composite Engineering for Space Photovoltaics** (Abudayyeh / University of New Mexico)

3:00 **Open Innovation Strategies in the Development of Hybrid-Nanostructured Encapsulant and Sealant Materials Systems and Processes for Photovoltaics** (Kawczak / StrateNexus Technologies)

3:20 **High-Efficiency, Lightweight, Flexible Solar Sheets for High-Altitude, Long-Endurance Flight Applications** (Chan / Microlink Devices)

3:40 – 3:50 Break

Session V

Flight Missions and Experiments

3:50 **ISS Flight Experiment of the ROSA Solar Array** (Paskin / Deployable Space Systems)

4:10 **Solar Array Design for the Mars InSight Lander Mission** (Billets / Lockheed Martin Space Systems)

4:30 **InGaN-Based Solar Cells for Space Applications** (Zhao / Arizona State University)

4:50 **Photovoltaic Power for Missions Beyond Jupiter** (Landis / NASA Glenn Research Center

5:30 **Picnic** (NASA GRC Picnic Grounds)

Wednesday, September 21, 2016

8:00 Breakfast

8:45 Irving Weinberg Award Presentation

Session VI
Measurements and Calibration

9:20 **Direct Comparison of Ground and In-Flight Measurements of New Multi-Junction Solar Cell Technologies** (Jenkins / Naval Research Laboratory)

9:40 **Retrieval and Initial Assessment of the ISS Solar Cell Experiment** (Myers / NASA Glenn Research Center)

10:00 **Enhanced Flight Endurance of UAVs Using IMM Space Solar Cell Technology** (Scheiman / Naval Research Laboratory)

10:20 **Enabling High Power Photovoltaic Designs: Space Lithium-Ion Battery Commoditization** (Reed / AIAA CoS on Li-ion Space Cell Commoditization)

10:40 – 10:50 Break

Session VII
Metamorphic and Lift-Off Technologies

10:50 **The IMMX+ Space Solar Cell** (Sharps / SolAero)

11:10 **Integration and Characterization of InAs/GaAs QD Subcell in 3-J ELO IMM Solar Cell** (Bittner / Rochester Institute of Technology)

11:30 **Recent Progress in the Production of Inverted Metamorphic Solar Cells on 6-Inch GaAs Through Epitaxial Liftoff and Substrate Reclaim** (Major / Microlink Devices)

11:50 **Sub-band Absorption Enhancement in Epitaxial Lift-Off Quantum Dot Solar Cell by Back Surface Texturing** (Bittner / Rochester Institute of Technology)

12:10 – 1:10 Lunch

Session VIII
Cell Technology I

1:10 **XTJ Supercells: Past, Present, and Future** (Chiu / Spectrolab)

1:30 **Lightweight and Flexible Metal Halide Perovskite Thin Films for Space Photovoltaics** (Choi / University of Virginia)

1:50 **A Novel, Thin-film, Gallium-Arsenide Solar Cell Design with Back-Surface Alternating Contacts** (O'Connor / Naval Postgraduate School)

2:10 **1-eV GaNAsSb Solar Cells Lattice-Matched to GaAs** (Maros / Arizona State University)

2:30 **Thin Film VLS Virtual Substrates for Low-Cost High Efficiency III-V Photovoltaics** (Babcock / Old Dominion University)

2:50 – 3:00 Break

3:00 – 4:45 **Workshops**

First Workshop Topic
Chairs: TBD

Second Workshop Topic
Chairs: TBD

Third Workshop Topic
Chairs: TBD

6:30 – 8:30 **Banquet** (Sokolowski's University Inn, Cleveland, OH)

Thursday, September 22, 2016

8:00 Breakfast

Session IX
Array Technologies

8:30 **Advanced Design and Manufacturing for Solar Arrays** (Ruhl / Sierra Nevada Corporation)

8:50 **Space Photovoltaic Concentrator Using Flat Glass/Silicon Fresnel Lenses, 4-Junction IMM Cells, Graphene-Based Radiators, and Articulating Photovoltaic Receivers** (O'Neill / MOLLC)

9:10 **Advancement and Technology Maturation of the Affordable Aladdin Solar Array for SmallSats** (Allmandinger / Deployable Space Systems)

9:30 **Solar Power Requirements for Conceptual 100W CubeSat** (Shaw / NASA Glenn Research Center)

9:50 – 10:00 Break

Session X
Cell Technology II

10:00 **Evidence of Inhibited Radiative Recombination in Step-Graded InGaAs Well Structures** (Welser / Magnolia Solar)

10:20 **Comparative Study of 2.05 eV AlGaInP and Metamorphic GaInP Materials and Solar Cells Grown by MBE and MOCVD** (Chmielewski / The Ohio State University)

10:40 **Assessment of Solar Power Technologies for Planetary Science Missions** (Surampudi / NASA Jet Propulsion Laboratory)

11:00 – 11:10 Break

11:10 – 11:50 Workshop Summaries

11:50 Closing Statements, Conference Ends